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1. An image processing apparatus for processing an image of an object taken by an image input apparatus by means of a reproducing environment converting unit, and displaying or printing the processed image in an image output apparatus, wherein

the reproducing environment converting unit converts the image into an image which can be observed in a desired reproducing environment based on 10 photographing environment information and observing environment information.

2. An image processing apparatus according to claim 1, wherein the reproducing environment converting unit comprises a color converting unit for converting 15 the image based on a difference in illuminating light spectrum between a photographing place and an observing place with reference to either the photographing environment information including information on the image input apparatus, photographing illumination spectrum information, and object characteristic information, or the observing environment information including information on the image output apparatus and observing illumination spectrum information.

3. An image processing apparatus according to claim 1 ~~or 2~~, wherein the reproducing environment converting unit converts the image with reference to the photographing environment information including at 25

least one of image pickup information, photographing light source information and object three-dimensional form information, and the observing environment information including at least one of illuminating light form information in an observing place,
5 illuminating light position information in the observing place, object direction information, object position information and observer position information.

4. An image processing apparatus according to
10 claim 3, wherein the reproducing environment converting unit comprises an illuminating light form converting unit for converting the image to an image which can be observed under a desired illuminating light form based on the illuminating light form information in the
15 observing place.

5. An image processing apparatus according to
claim 3, wherein the reproducing environment converting unit comprises an illuminating light position converting unit for converting the image to an image which can be observed at a desired illuminating light position based on the illuminating light position information in the observing place.
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6. An image processing apparatus according to
claim 3, wherein the reproducing environment converting unit comprises an object position converting unit for converting the image to an image which can be observed when the object is placed at a desired position based
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on the object position information.

7. An image processing apparatus according to
claim 3, wherein the reproducing environment converting
unit comprises an object direction converting unit for
converting the image to an image which can be observed
5 when the object is placed in a desired direction based
on the object direction information.

8. An image processing apparatus according to
claim 3, wherein the reproducing environment converting
10 unit comprises an observer position converting unit for
converting the image to an image which can be observed
at a desired position, based on the observer position
information.

9. An image processing apparatus according to
Claim 4
any one of claims 4 to 8, wherein the reproducing
environment converting unit comprises at least one of
an image composing and interpolating unit, a specular
reflecting component separating unit, and an object
three-dimensional form recognizing unit, and utilizes
20 it when calculating reproducing environment image.

10. An image processing apparatus according to
claim 1 or 2, wherein the reproducing environment
converting unit comprises:

25 a reproducing environment-variable image data
producing unit for producing reproducing environment-
variable image data by using the photographing
environment formation;

data transmitting means for transmitting the
reproducing environment-variable image data produced by
the reproducing environment-variable image data
producing unit through a portable recording medium or a
5 network; and

a reproducing environment-variable image data
processing unit for converting the image in accordance
with reproducing environment by using the reproducing
environment information.

10 11. An image processing apparatus according to
claim 1 ~~or 2~~, wherein the image input apparatus
controls a turntable for rotating the object at a
desired angle, and automatically photographs images at
a plurality of angles.

15 12. An image processing apparatus according to
claim 11, wherein the turntable has a rotation axis
which can be inclined.

20 13. An image processing apparatus according to
claim 1 ~~or 2~~, wherein the image input apparatus moves a
point light source to a desired position and
photographs the object illuminated with the point light
source in a desired angle in accordance with a preset
program.

25 14. An image processing apparatus according to
claim 1 ~~or 2~~, wherein the image is photographed by a
single camera or two cameras stereoscopically arranged,
constituting the image input apparatus, the camera

being selected from the group consisting of a digital still camera, a video camera and a multi-spectrum camera.

15. An image processing apparatus according to claim 1 ~~or 2~~, wherein the image output apparatus comprises a head mounting display for displaying the processed image of the object, and one of a stereoscopic image and a holographic image is displayed in the head mounting display.

10 16. An image processing apparatus according to claim 15, wherein the head mounting display of the image output apparatus has a gyroscopic sensor functioning as part of observing environment information instructing means of the reproducing environment converting unit, and changes the displayed image in accordance with movement of the head mounting display.

15 17. An image processing apparatus according to claim 3, wherein the reproducing environment converting unit comprises:

20 a reproducing environment-variable image data producing unit for producing reproducing environment-variable image data by using the photographing environment formation;

25 data transmitting means for transmitting the reproducing environment-variable image data produced by the reproducing environment-variable image data

producing unit through a portable recording medium or a network; and

a reproducing environment-variable image data processing unit for converting the image in accordance
5 with reproducing environment by using the reproducing environment information.

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